



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,395	04/01/2004	Roy C. Krohn	KRO 0131 PUS1	9594
22045	7590	05/15/2007		
BROOKS KUSHMAN P.C. 1000 TOWN CENTER TWENTY-SECOND FLOOR SOUTHFIELD, MI 48075			EXAMINER BERMAN, SUSAN W	
			ART UNIT 1711	PAPER NUMBER
			MAIL DATE 05/15/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/816,395

**Applicant(s)**

KROHN, ROY C.

**Examiner**

Susan W. Berman

**Art Unit**

1711

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6,9-12,14-19,22-24 and 26-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,9-12, 14-19,22-24 and 26-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Arguments***

Applicant's argument that the consisting essentially of language in claim 33 distinguishes over the cited references because each teaches additional ingredients is persuasive. The essential ingredients taught by Shustack are a bulky (meth)acrylate monomer, a mixture of urethane acrylate and epoxy acrylate oligomers, and an acidic adhesion promoter. The additional disclosed ingredients are optional. However, this argument is persuasive because Shustack teaches that the acidic adhesion promoter is an essential ingredient and does not teach adding talc.

***Response to Arguments***

Applicant's arguments filed 03-23-2007 with respect to claims 1-6, 9-11, 14-19, 22-24 and 26-33 have been fully considered but they are not persuasive. See the rejection set forth herein below. There is no comparative evidence of record that shows unexpected results obtained when the instantly claimed percents by weight are selected from those disclosed by Shustack. With respect to the amount of monomer of formula I in the composition, Shustack teaches 15-75% bulky monomer corresponding to the monomers disclosed in the instant specification on page 7 as being equivalent to monomers of formula I wherein R<sub>2</sub> is formula II.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 28 and 30-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

Art Unit: 1711

applicant regards as the invention. In the amendment filed 03-23-2007 the phrase "the acrylated oligomer is present in an amount ...photocurable composition" appears twice. There is no recitation of the weight percent of the alkoxyated diacrylate monomer.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 9-11, 14-19, 22-24 and 26-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shustack (5,128,387) in view of Shaw et al (5,440,446).

Shustack discloses radiation curable coating compositions for metal comprising a bulky (meth)acrylate monomer, a mixture of urethane acrylate and epoxy acrylate oligomers, an acidic adhesion promoter, an ethylenically unsaturated monomer of the formula set forth in column 5 wherein R<sub>2</sub> can be isobornyl or dicyclopentyl oxyethyl, waxes, other additives and a photoinitiator. See column 3, lines 56, to column 4, line 3, column 5, line 21, to column 6, line 8, line 49. Shustack teaches that the viscosity of the preferred urethane acrylated oligomer is in the range from 2800-4200 cps (column 6, lines 29-41). The viscosity of the preferred epoxy diacrylate oligomer is about 2200 cps (column 7, lines 24-40). A polyester oligomer having a viscosity from 2000-3000 cps is taught in column 8, lines 19-36.

Shustack teaches using 15-75 weight percent bulky acrylate monomers and 10-80 % oligomer mixture based on the 100 % of the three essential components (column 4, lines 4-25). Shustack teaches using 10-80 parts by weight acrylated urethane and 10-80 parts by weight acrylate epoxy oligomers per 100 parts by weight of oligomer mixture (column 6, lines 16-28). Shustack discloses using 15-75% isobornyl (meth)acrylate monomer as the bulky acrylate monomer in the compositions. Suitable photoinitiators in amounts from 0.3 to 10 % of the base coating composition and addition of 0.5 to 3.5 pbw polyethylene wax to 100 pbw of the basic composition is taught in column 9, lines 18-59. See examples I, II and III. The differences from the instantly claimed composition are that Shustack does not teach adding a monomer of formula (I) set forth in instant claim 1 or an amine functional acrylate co-initiator. However, Shustack discloses monomers, such as tripropylene glycol diacrylate and tetraethylene glycol diacrylate, homologs of a monomer of formula (I) in column 6, lines 29-34 and lines 54-57.

Shaw et al disclose a radiation curable acrylate protective coating material for coating a metal layer on a dielectric substrate. Shaw et al teach mixing a very low and very high viscosity material to obtain compositions to be applied by flash evaporation, condensation and cured by exposure to UV radiation (column 14, line 37, to column 16, line 44). One of the mixtures specifically taught is a mixture of 70% Henkel 4770 (an amine acrylate) and 30% diethylene glycol diacrylate (column 8, line 57, to column 9, line 48). Further advantages of including an amine acrylate to increase cure speed and adhesion, add flexibility and reduce shrinkage are taught (column 9, lines 43-45, and column 16, line 60 to column 17, line 36). See column 6, line 19, to column 9, line 48. Shaw et al further teach adding a reactive amine synergist

Art Unit: 1711

photosensitizer to the photoinitiator to increase the cure speed (column 19, line 58, to column 20, line 8). Waxes are not mentioned.

It would have been obvious to one skilled in the art at the time of the invention to employ the acrylate mixture of an amine acrylate and diethylene glycol diacrylate taught by Shaw et al or to substitute the mixture for the monomers, such as tripropylene glycol diacrylate or tetraethylene glycol diacrylate, in the acrylate materials taught by Shustack. Each of Shustack and Shaw et al teach compositions for coating metal substrates. Shustack provides motivation by teaching that the compositions comprise monomers homologous to diethylene glycol diacrylate, such as tripropylene glycol diacrylate or tetraethylene glycol diacrylate, in combination with the disclosed acrylated urethane oligomers. Shaw et al provide motivation by teaching that diethylene glycol diacrylate is one of ten diacrylates that can be included in the disclosed composition for forming a film over a metal layer (column 8, lines 6-43). Shaw et al provide additional motivation by teaching that diethylene glycol diacrylate can be used in combination with a higher viscosity amine acrylate to provide a mixture for UV curing on the metal substrate (column 8, line 57, to column 9, line 36). One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing a useful coating composition combining the advantages of the components taught by Shustack and the advantages of the components taught by Shaw et al.

It would have been obvious to one skilled in the art at the time of the invention to determine the optimum weight percents of components disclosed by Shustack in view of Shaw et al required to obtain the desired properties in the instant application. Shustack provides motivation by teaching parts by weight of the disclosed components that are within the ranges set

Art Unit: 1711

forth in the instant claims. With respect to the amount of monomer of formula I in the composition, Shustack teaches 15-75% bulky monomer corresponding to the monomers disclosed in the instant specification on page 7 as being equivalent to monomers of formula I wherein  $R_2$  is formula II. With respect to claims 12 and 34, Shustack does not specifically mention talc among the disclosed additives. However, It would have been obvious to one skilled in the art at the time of the invention to include a filler such as talc as modifier or additives as suggested by Shustack in column 3, line 64, to column 4, line 3.

With respect to claims 14 and 26, It would have been obvious to one skilled in the art at the time of the invention to add an amine acrylate as reactive synergist or to increase cure speed, adhesion, and/or flexibility or to reduce shrinkage, as taught by Shaw et al, to the analogous compositions disclosed by Shustack. The compositions are considered to be analogous because of the radiation curable acrylate-functional coating materials disclosed. Shustack teach using mixtures of acrylated oligomers, including an amine-modified diacrylate of BPA epoxy, thus providing motivation to include amine-modified acrylates. Shustack also discloses benzophenone and acetophenone photoinitiators that correspond to the photoinitiators taught by Shaw et al, thus providing motivation to employ the reactive amine synergist taught by Shaw et al in combination with the disclosed photoinitiators. One of ordinary skill in the art at the time of the invention would have been motivated to include an amine-modified acrylate or a reactive amine synergist in the compositions disclosed by Shustack in order to take advantage of the properties taught by Shaw et al, such as increased cure speed.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-6, 9-11, 14-19, 22-24 and 26-34 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-13, 15-25 and 27-30 of copending Application No. 10/703,938. Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons. The claims of '938 set forth the same components as are set forth in the instant claims except that the formula of the "acrylated monomer" is not specified as in the instant claims. Claims 28-30 of '938 sets forth an ethylene glycol dicyclopentyl ether acrylate.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



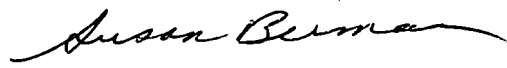
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W. Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SB  
5/5/2007

  
Susan W Berman  
Primary Examiner  
Art Unit 1711